



VIRTUAL QUEUING

A GAME-CHANGER FOR DP WORLD ANTWERP GATEWAY

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When people think of trucking, they don't think digital. They think of very big, very tough, very analogue machines, and the men and women who operate these machines are pretty tough themselves. But as the 21st century marches on, every industry in the world stands to reap the benefits of the digital revolution, with the trucking and shipping industry already taking important steps in that direction — steps that have paid dividends in efficiency, safety, and client satisfaction. At the DP World dockyard in Antwerp, Belgium, a simple shift to virtual buffer queues led to an unprecedented leap in performance from long and congested lines of trucks waiting to pick up goods.

GOING MOBILE

We don't often think of the shipping industry as very digital. Despite the countless innovations piled onto maritime transport and the movement of goods, we still associate the industry with the 'old economy' or big heavy ships, crates,

and cranes, and not with the advanced technology and state-of-the-art logistics. But digital and mobile technologies have disrupted and reinvigorated industry after industry, and the shipping and trucking world is no different.

Even a very basic digital upgrade can yield massive benefits within an industry. People often imagine a bottom-up overhaul of everything within a business, but the digital transformation really happens one function at a time. Think of the transformation companies underwent by switching from typewriters to digital word processing in the last few decades. From awkwardly typed documents covered in whiteout, the workforce in general transitioned to digital error correction, free unlimited copies, millions of fonts and colors, free sharing on the internet, automatic redundant backups, automated proofreading, translations, and more.

This switch saves millions upon millions of dollars in man-hours alone as digital technology streamlined just one

important aspect of doing business. This is the philosophy businesses should apply when seeking electronic solutions: You don't need to rebuild from the ground up, just replace one operation at a time.

AN OVERVIEW OF DP WORLD

DP World in Belgium is a major dock site at one of the busiest harbors in Europe. Their four operating terminal locations feature 12 cranes and employ over 900 people. These employees load and unload around 2.5 million containers from almost 950 vessels every year, generating at least US\$240 million in revenue. That means handling over 3,000 trucks per day.

This incredible volume of traffic creates, accordingly, incredible pressure on the staff and facilities at the DP World Antwerp Gateway to handle every crate, ship, and truck as smoothly as possible, and an ongoing reliance on analogue techniques was not yielding the desired results, creating logjams and dragging down service quality.

GROWTH LEADS TO TROUBLE

Between 2004 and 2014, DP World experienced an impressive rate of growth and prosperity. Opening their new Antwerp terminal in 2005, the company saw a steady rise in shipping volume, leading to healthy, organic growth of the facility and operation, as well as impressive commercial growth. With waterside and landside loading activity humming along smoothly, DP World developed an excellent reputation for efficiency and professionalism.

In 2015, however, all this growth led to unforeseen but inevitable problems for DP World. With volumes still growing and all container handling consolidated to the Antwerp Gateway, the company encountered extreme congestion in their landside operations. While waterside loading and unloading remained smooth, an unmanageable number of trucks would crowd the docks as handling each one took longer.

This led to unsightly and labour-intensive long queues, inefficient use of container handling equipment, and increased stress among employees. Worse still, the overloaded facilities and congested roadways led to an expanded environmental impact and more risk to the safety of visitors and workers. All of this combined to cost DP World some of their sterling reputation, and in an online world where a single bad review can lead to sinking fortunes in an industry where efficiency, speed, and safety are everything, DP World could not afford to be known as inefficient, slow, and unsafe.

Inspecting their operations, DP World found several major causes for this backlog. Despite a truck appointment system, road congestion in Antwerp and other external factors meant trucks did not arrive evenly spaced throughout the day. During peak hours, with many vehicles arriving at once, the backlog was simply unmanageable.

Congested roadways meant trucks waiting to go to one exchange lane would be blocking those going to one behind it, compounding the issue further and making some areas unreachable and idle while others were badly overtaxed. To solve this problem, DP World could have tried to reconfigure their entire layout for greater efficiency, paying millions of Euros for a solution that might not even work. But just as switching to digital typing was one small step that had a giant impact, DP World switched to Virtual Queuing and has never looked back.

THE DIGITAL SOLUTION

The core problem at DP World Antwerp wasn't too much traffic. They knew how many trucks they could load and unload

per day for maximum efficiency and were already scheduling each appointment. The problem was haphazard arrivals and departures leading to congestion, which led to backups, empty and underused terminals, and a slowdown that kept compounding itself with each additional truck. The solution was to institute a system wherein trucks did not even enter the dockyard (and thus add to congestion) until called for their appointment. The solution was digital queuing.

A virtual queue is a system that uses mobile technology to let users sign up for an appointment remotely or at a special kiosk and then be placed in a virtual queue. Users may go wherever they wish while waiting and will receive updates letting them know when their turn will be, as well as a timeframe to return to the premises for their turn in line. And while truck drivers aren't going to roll through Het Ellandje (the 'little island' at Antwerp Port) for a cup of coffee while on the job, they definitely appreciate a chance to wait for their appointment without being stuck in bumper-to-flatbed traffic.

For DP World, the digital queuing solution keeps trucks waiting at the staging area/parking lot until their designated exchange area or terminal becomes open. At that time, the queued truck driver receives a message shown on a call-up board within the administrative building, a text message, or a notification using the digital queuing service smartphone app. The truck driver is then free to proceed to the inspection point, exchange area, and terminal exit without anyone in his way, the digital system accounting for ongoing traffic.

RESULTS

DP World first began implementing digital queuing in September 2015. By March 2016, key trucking companies participated in live testing on the Antwerp grounds, and one month later in April, the system was 100% operational. Since then, truck service time at the Antwerp location has improved significantly. Truck queues have disappeared from the DP World dock site and DP World employees are making more efficient use of exchange areas and gear. Customer satisfaction, environmental impact, and safety have improved across the board.

APPLICATIONS

The shipping industry is hindered by how fast its employees can load and unload ships and trucks to keep the system moving and goods flowing around the world. By embracing new innovations in one aspect of their performance — truck queuing — DP World vastly improved

their performance on a number of metrics, eliminating congestion, and reducing loading and unloading times to ensure the smooth flow of goods through the Antwerp docks. Virtual queuing and other digital advances allow businesses to make improvements in their operations and see major rewards.

DP World is only one shipping firm with a specific problem (congestion) gumming up its works. Here is just a short list of some of the benefits digital queuing can offer beyond ending gridlock among the shipping containers:

- Improved safety
- Happy truckers
- Higher landside throughput
- Improved terminal reputation
- Increased seaside volume
- Load balancing reduces traffic peaks
- Getting truck information ahead of time
- Digital queues can be used to prioritize faster transactions
- Digitizing interaction with truckers means they can get personalized driving directions to the corresponding exchange lane
- Real-time data and analytics

ABOUT THE AUTHOR

Alex is founder and CEO of QLess and holds a degree in Biology and Economics from MIT and an M.S. and Ph.D. in Computation and Neural Systems and Biology from Caltech. Prior to starting QLess, Alex held positions at McKinsey & Co., the Center for Computation, Computers, Information and Mathematics of Sandia National Labs, and Caltech.

ABOUT THE ORGANIZATION

QLess helps your business overcome problems that alienate customers and impact your bottom line with a simple, easy-to-use solution and eliminates waiting with an award-winning queuing and scheduling technology. QLess is dedicated to helping boost their clients' reputations through improved customer satisfaction, operational efficiencies, and sustainable growth.

ENQUIRIES

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